

REMARKS

Claims 1–3, 6–12, 14–18, and 46 are pending. Claims 19–35 are withdrawn from consideration.

Amendments to the Claims

Claims 4 and 5 have been canceled without prejudice.

Claim 46 has been amended from “a light emitting diodes” to “light emitting diodes”. Applicants thank the Examiner for pointing out the error.

Claim Rejections Under 35 U.S.C. § 112

Claims 4 and 5 stand rejected under 35 U.S.C. § 112, second paragraph as indefinite. Claims 4 and 5 have been canceled, and accordingly, the rejection is moot.

Claim 7 stands rejected under 35 U.S.C. § 112, second paragraph as indefinite for reciting “greater than about”. The Examiner states that the juxtaposition of “greater than” with “about” “makes it unclear what minimum number of probe elements is encompassed by the claim.” M.P.E.P. 2173.05(b)(A) states that “exceeding about 10% per second” is definite. Applicants note that “greater than about” is synonymous with “exceeding about”. Accordingly, Applicants submit that the term “greater than about” is also not indefinite and the rejection is overcome.

Claim Rejections Under 35 U.S.C. § 102(b)

Claim 1–10, and 14–17 stand rejected as anticipated by U.S. Patent No. 6,264,825 B1 (Blackburn). “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Claims 4 and 5 have been canceled, and accordingly, the rejections of these claims are moot.

Independent claim 1 recites in part “an electric light source of sufficient energy and intensity to initiate a photoelectrochemical reaction of the non-covalent photoelectrochemical label”. As discussed below, Blackburn does not disclose this feature, and accordingly, does not anticipate claim 1. The Examiner characterizes Blackburn as disclosing an electric light source (15:30–40) that initiates a photochemical label (80:66–81:6), and that photoelectrochemistry is detected (81:55–82:8).

Col. 15, ll. 30–40 cited by the Examiner for disclosing a light source does not disclose whether the light source has “sufficient energy and intensity to initiate a photoelectrochemical reaction of the non-covalent photoelectrochemical label”.

Col. 80, l. 60 through col. 81, l. 6 cited by the Examiner for teaching that the light source initiates a photoelectrochemical label states:

In this embodiment, possible electron donors and acceptors include all the derivatives listed above for photoactivation or initiation. Preferred electron donors and acceptors have characteristically large spectral changes upon oxidation and reduction resulting in highly sensitive monitoring of electron transfer. Such examples include $\text{Ru}(\text{NH}_3)_4\text{py}$ and $\text{Ru}(\text{bpy})_2\text{im}$ as preferred examples. It should be understood that only the donor or acceptor that is being monitored by absorbance need have ideal Espectral characteristics.

This paragraph simply teaches that certain compounds exhibit large spectral changes upon oxidation and reduction that are conveniently monitored spectroscopically. These compounds include electron donors and acceptors disclosed “for photoactivation or initiation.” This paragraph does not disclose “a photoelectrochemical reaction of the non-covalent photoelectrochemical label”. In fact, one skilled in the art would understand the cited paragraph as disclosing that *no photoelectrochemical reaction is occurring*, because such a reaction would photooxidize or photoreduce the electron donor or electron acceptor, thereby changing the redox state of the compound. As disclosed in this paragraph, changing the redox state of the compound is accompanied by large spectral changes. Accordingly, initiating a photoelectrochemical reaction on the compound would render the monitoring thereof useless.

The paragraphs immediately before and after the cited paragraph confirm this interpretation. The prior paragraph discloses *electrochemical* reactions of these compounds, which may be detected spectroscopically. Blackburn at 80:55–57 (“In one embodiment, the efficient transfer of electrons from the ETM to the electrode results in stereotyped changes in the redox state of the ETM.”).

The paragraph following the cited portion discloses detecting the electrochemical reaction of the electron donor or electron acceptor fluorometrically. Blackburn at 81:8–9 (“In a preferred embodiment, the electron transfer is detected fluorometrically.”). As discussed above, irradiating the electron donor or electron acceptor with a light source of “sufficient energy and intensity to initiate a photoelectrochemical reaction” would be counterproductive.

Col. 81, l. 55– col. 82, l. 8 cited by the Examiner appears to disclose only that redox of an electron donor or electron acceptor may be monitored electronically as an alternative to spectroscopic monitoring. The cited portion discloses monitoring an electrochemical reaction, not a photoelectrochemical reaction. For example, Blackburn describes fluorometric monitoring of an electrochemical reaction: “In a preferred embodiment, the electron transfer is detected fluorometrically.” Blackburn at 81:8–9. In the cited portion, Blackburn states: “In a preferred embodiment, monitoring electron transfer is via amperometric detection.” Blackburn at 82:7–8. The specification is providing two alternative methods for monitoring the same thing: an electrochemical reaction.

Because Blackburn does not disclose every feature recited in claim 1, Blackburn does not anticipate claim 1 for at least this reason. Because claims 2, 3, 6–10, and 14–17 are dependent on claim 1 and recite additional features, these claims are also not anticipated by Blackburn for at least the same reason.

Rejections Under 35 U.S.C. § 103

Obviousness is a question of law based on underlying factual inquiries set forth in *Graham v. John Deere*: (1) determining the scope and content of the prior art; (2) ascertaining the differences between the claimed invention and the prior art; and (3) resolving the level of ordinary skill in the pertinent art. Objective evidence of non-obviousness must be also considered. In assessing the differences between the claim and the cited references, every feature of the claim must be disclosed or suggested in the cited references or known to one skilled in the art in making a *prima facie* case of obviousness. A *prima facie* case of obviousness also requires a reasonable expectation of success in the modification or combination of references, which must be found in the cited references or must be known to one skilled in the art. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). “The defendants contend that the two patents in suit are invalid for obviousness based on a combination of several prior art references. In such a case, the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition or device, or carry out the claimed process, and would have had a *reasonable expectation of success* in doing so.” *Pharmastem Therapeutics v. Viacell, Inc.* 491 F.3d 1342 (Fed. Cir. 2007) (emphasis added).

Claims 11, 12, and 46 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Blackburn in view of U.S. Patent No. 5,871,628 (Dabiri).¹ Claims 11 and 12 are dependent on claim 1. The Examiner relies on Blackburn for disclosing every feature recited in claim 1. However, Blackburn does not disclose or suggest every feature recited in claim 1, as discussed above, and the deficiency is not made up for by Dabiri. Accordingly, Blackburn and Dabiri do not disclose or suggest every feature recited in claims 11 and 12 and these claims are not obvious over the combination for at least this reason.

With respect to claim 49, the Examiner relies on Dabiri for disclosing only a laser light source, and on Blackburn for disclosing all of the remaining features. Independent claim 49 recites in part “the light source ... has sufficient energy and intensity to initiate a photoelectrochemical reaction of the non-covalent photoelectrochemical label”. As discussed above, Blackburn does not disclose or suggest this feature. Again, this deficiency is not made up for by Dabiri. Accordingly, the combination of Blackburn and Dabiri do not disclose or suggest every feature recited in claim 49 and claim 49 is not obvious over the combination for at least this reason.

Claim 18 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Blackburn in view of U.S. Patent No. 6,362,004 B1 (Noblett). Claim 18 is dependent on claim 1. The Examiner relies on Blackburn for disclosing every feature recited in claim 1. As discussed above, Blackburn does not disclose or suggest every feature recited in claim 1. The deficiency is not made up for by Noblett. Thus, the combination of Blackburn and Noblett also does not disclose or suggest every feature of claim 18. Accordingly, claim 18 is not obvious over Blackburn and Noblett for at least this reason.

Rejoinder of Withdrawn Claims

Because the pending claims are allowable over the art of record, Applicants request rejoinder of the withdrawn claims and examination of the same under M.P.E.P. 821.04, which provides for rejoinder of any claim that requires all the limitations of an allowable claim. Because withdrawn claims 19–30 and 32–35 recite every feature of claim 1, Applicants request rejoinder of these claims.

¹ The Examiner’s inclusion of claim 1 in this rejection appears to be erroneous given that the rejection does not discuss claim 1.

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No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, the Applicants are not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that the Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

Conclusion

Applicants submit that all of the Examiner's rejections have been addressed and overcome, and that all claims are allowable over the art of record. Applicants have submitted amendments and arguments believed to be sufficient to overcome all of the outstanding rejections. Consequently, Applicants have not advanced every argument for the allowability of the claims over the references of record. As such, Applicants do not acquiesce to any of the Examiner's statements or characterizations not specifically traversed. Should the Examiner believe that any outstanding issues are resolvable in an Examiner's Amendment, the Examiner is invited to contact the undersigned.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,
KNOBBE, MARTENS, OLSON & BEAR, LLP

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By: 

Pui Tong Ho
Registration No. 44,155
Attorney of Record
Customer No. 20,995
(949) 760-0404